

**WHAT IS CLAIMED IS:**

1. A plug connection for fast-fit coupling of two appliances forming part of a medical handpiece system, the plug connection comprising a first coupling fitting on one of said appliances and a second  
5 coupling fitting on the other of said appliances, said first coupling fitting having a movable locking plate thereon and the second coupling fitting having a projecting element thereon projecting toward said first coupling fitting and positioned to engage and move said locking plate between lock and unlock positions when said first and second coupling fittings are moved toward and away from each other.
- 10 2. The plug connection of claim 1, which further comprises a biasing element urging said locking plate from its lock position toward its unlock position.
3. The plug connection of claim 1, wherein said locking plate and projecting element have mating  
15 surfaces which engage one another to cause the locking plate to move toward its lock position when said coupling fittings are joined.
4. The plug connection of claim 1, wherein said projecting element comprises an end portion of a  
media transfer line and said mating surface of said locking plate comprises a surface of an opening in said  
locking plate.  
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5. The plug connection of claim 1, wherein said projecting element comprises an end portion of an  
electrical contact and said mating surface of said locking plate comprises a surface of an opening in said  
locking plate.
- 25 6. The plug connection of claim 1, wherein said second coupling fitting comprises a circumferential  
outer sleeve which projects axially outwardly a selected distance from remainder portions of said second  
coupling fitting and extends about an outer portion of said first coupling fitting when joined, and said  
projecting element projects outwardly from said remainder portions of said second coupling a distance at  
least as great as said selected distance.  
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7. The plug connection of claim 1, wherein said first coupling fitting comprises a bearing member  
mounted for shifting between an unlock position and a lock position spaced radially from said unlock  
position and a ring fitting movable between an unlock position out of engagement with said bearing member

and a lock position engaging said bearing member and urging the bearing member to its lock position, and said second coupling fitting comprises a groove oriented to align with and receive a portion of said bearing member when said bearing member is in its lock position.

5           8. The plug connection of claim 1, wherein said first coupling fitting comprises a bearing member mounted for shifting radially between an unlock position and a lock position spaced outwardly from said unlock position and a ring fitting movable between an unlock position out of engagement with said bearing member and a lock position engaging said bearing member and urging the bearing member to its lock position, and said second coupling fitting comprises a groove oriented to align with and receive a portion of  
10 said bearing member when said bearing member is in its lock position.

          9. The plug connection of claim 8, which further comprises a spring biasing said ring fitting from its unlock toward its lock position, said locking plate when in its unlock position is oriented to engage and hold said ring fitting its unlock position, and when said locking plate is moved to its unlock position it releases  
15 said ring fitting to allow said ring fitting to move toward its lock position.

          10. The plug connection of claim 9, wherein said ring fitting comprises a stepped portion and said locking plate engages said stepped portion when in its unlock position.

20           11. The plug connection of claim 8, wherein an operator sleeve is mounted on said first coupling, is manually shiftable longitudinally of said first coupling between first and second positions, and is operatively connected to said ring fitting to move said ring fitting from its lock position to its unlock position.

          12. The plug connection of claim 1, wherein a plurality of media transfer lines and/or electrical  
25 contacts are arranged in a selected pattern projecting axially outwardly from remainder portions of said second coupling fitting, and said first coupling fitting comprises a plurality of complementary arranged receptacles into which said media transfer lines and/or electrical contacts may extend when the first and second coupling fittings are joined.

30           13. The plug connection of claim 12, wherein said plurality of media transfer lines and/or electrical contacts are arrayed in a semi-circular pattern between the longitudinal axis and the outer periphery of the second coupling fitting.

14. A plug connection for fast-fit coupling of two appliances forming part of a medical handpiece system, the plug connection comprising,

a first coupling fitting on one of said appliances having a longitudinal axis, said first coupling fitting having a bearing member mounted for shifting radially between an unlock position and a lock position spaced radially from said unlock position, a ring fitting movable between an unlock position out of engagement with said bearing member and a lock position engaging said bearing member and urging it to its lock position, a spring biasing said ring fitting toward its lock position, a lock plate movable between an unlock position engaging and inhibiting movement of said ring fitting from its unlock position toward its lock position and a lock position releasing said ring fitting, and a biasing element urging said lock plate from its unlock position toward its lock position, and

a second coupling fitting on the other of said appliances having a longitudinal axis, said second coupling fitting having a groove oriented to align with and receive a portion of said bearing member when the coupling fittings are engaged and said bearing member is in its lock position, and a projecting element extending axially outwardly from remainder portions of said second coupling fitting to engage a portion of said locking plate and shift the locking plate toward its unlock position as the first and second coupling fittings are moved axially into engagement with each other.

15. The plug connection of claim 14, wherein said locking plate and projecting element have mating surfaces which engage one another to cause the locking plate to move toward its lock position when said coupling fittings are joined.

16. The plug connection of claim 14, wherein said second coupling fitting comprises a circumferential outer sleeve which projects axially outwardly a selected distance from remainder portions of said second coupling fitting and extends about an outer portion of said first coupling fitting when joined, and said projecting element projects outwardly from said remainder portions of said second coupling a distance at least as great as said selected distance.

17. The plug connection of claim 16, wherein said bearing member shifts radially outwardly toward its lock position and said groove is formed on an inner surface of said outer sleeve.

18. The plug connection of claim 14, wherein an operator sleeve is mounted on said first coupling, is manually shiftable longitudinally of said first coupling between first and second positions, and is operatively connected to said ring fitting to move said ring fitting from its lock position to its unlock position.

19. The plug connection of claim 14, wherein a plurality of media transfer lines and/or electrical contacts are arranged in a selected pattern projecting axially outwardly from remainder portions of said second coupling fitting, and said first coupling fitting comprises a plurality of complementary arranged receptacles into which said media transfer lines and/or electrical contacts may extend when the first and second coupling fittings are joined.

20. A plug connection for fast-fit coupling of two appliances forming part of a medical handpiece system, the plug connection comprising a first coupling fitting on one of said appliances having a longitudinal axis and a second coupling fitting on the other of said appliances having a longitudinal axis, said first coupling fitting having a movable locking plate thereon and the second coupling fitting having a projecting element thereon projecting toward said first coupling fitting and positioned to engage and move said locking plate between lock and unlock positions when said first and second coupling fittings are moved axially toward and away from each other.

21. The plug connection of claim 20, wherein said locking plate is mounted for movement laterally of the longitudinal axis of said first coupling fitting and which further comprises a biasing element urging said locking plate toward said unlock position.

22. The plug connection of claim 21, wherein said locking plate and projecting element have engaging surfaces which engage one another to cause said locking plate to move laterally of the longitudinal axis of said first coupling fitting from its unlock position toward its lock position as said projecting element is moved with said second coupling in an axial direction.

23. The plug connection of claim 20, wherein said second coupling fitting comprises a circumferential outer sleeve which projects axially outwardly a selected distance from remainder portions of said second coupling fitting and extends about an outer portion of said first coupling fitting when joined, and said projecting element projects outwardly from said remainder portions of said second coupling a distance at least as great as said selected distance.

24. The plug connection of claim 20, wherein said first coupling fitting comprises a bearing member mounted for shifting radially between an unlock position and a lock position spaced outwardly from said unlock position and a ring fitting movable between an unlock position out of engagement with said bearing

member and a lock position engaging said bearing member and urging the bearing member to its lock position, and said second coupling fitting comprises a groove adapted to align with and receive a portion of said bearing member when said bearing member is in its lock position.

5           25. The plug connection of claim 24, which further comprises a spring biasing said ring fitting from its unlock toward its lock position, and said locking plate when in its unlock position is oriented to engage and hold said ring fitting in its unlock position and when said locking plate is moved to its unlock position it releases said ring fitting to allow said ring fitting to move toward its lock position.

10           26. The plug connection of claim 25, wherein said ring fitting comprises a stepped portion and said locking plate engages said stepped portion when in its unlock position.

            27. The plug connection of claim 24, wherein an operator sleeve on said first coupling is manually shiftable longitudinally of said first coupling and is operatively connected to said ring fitting to move said  
15 ring fitting from its lock position to its unlock position.

            28. The plug connection of claim 20, wherein a plurality of media transfer lines and/or electrical contacts are arranged in a selected pattern projecting axially outwardly from remainder portions of said second coupling fitting, and said first coupling fitting comprises a plurality of complementary arranged  
20 receptacles into which said media transfer lines and/or electrical contacts may extend when the first and second coupling fittings are joined.

            29. A plug connection for a medical handpiece system including an electric motor drive to drive a treatment instrument and a supply conductor, said plug connection comprising a fast-fit coupling connection  
25 between the electric motor drive and the supply conductor.

            30. A plug connection for a medical handpiece system including a motor to drive a treatment instrument and a supply conductor, said plug connection comprising a fast-fit coupling connection between the motor drive and the supply conductor wherein coupling between the motor and supply conductor is  
30 achieved by axially plugging together the motor and supply conduit.

            31. The plug connection of claim 30, wherein said fast-fit coupling comprises a shape-actuated coupling comprising at least one shaped element connected to one of said electric motor drive or supply

conductor and movable between an unlock position and a lock position spaced laterally from said unlock position, and a receiving groove on the other of said electric motor drive or supply conductor oriented to receive said shaped element in its lock position.